

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Reexamination of U.S. Patent No. 6,181,990 Control No.: 90/006,742 Filing Date: August 12, 2003 Inventors: Grabowsky et al. Examiner: Yonel Beaulieu Art Unit: Title: AIRCRAFT FLIGHT DATA ACQUISITION AND TRANSMISSION SYSTEM

AMENDMENT AND RESPONSE TO OFFICE ACTION IN EX PARTE REEXAMINATION

July 26, 2005

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is submitted in the above-referenced reexamination of U.S. Patent No. 6,181,990 (hereinafter "the '990 patent"). In response to the Office Action mailed on June 3, 2005, the Patent Owner responds as follows, where:

A section entitled Amendments to the Claims begins on page 2; and

A section entitled **Remarks** begins on page 5.

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AMENDMENTS TO THE CLAIMS

The Patent Owner respectfully requests entry of the following amendments to the claims:

1. (amended): An aircraft data transmission system, the aircraft having a data acquisition unit, and the aircraft including a data storage medium having stored thereon flight data gathered in-flight by at least one sensor on the aircraft, comprising:

a communications unit located in the aircraft and in communication with the data acquisition unit;

a cellular infrastructure in communication with said communications unit after the aircraft has landed, wherein the cellular infrastructure communicates said flight data, and wherein the communication is initiated automatically upon landing of the aircraft; [and]

a data reception unit in communication with said cellular infrastructure; and  
wherein said flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

15. (amended): An aircraft data transmission system, the aircraft having a data acquisition unit, the aircraft including a data storage medium having stored thereon flight data gathered in-flight by at least one sensor on the aircraft, comprising:

means for transmitting said flight data from the data acquisition unit, via a cellular infrastructure after the aircraft has landed, wherein transmission of the data is initiated automatically upon landing of the aircraft; [and]

means for receiving said flight data from said cellular infrastructure; and

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wherein said flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

18. (amended): A method of transmitting aircraft flight data from an aircraft,

comprising:

receiving flight data from a data acquisition unit;

transmitting said flight data via a cellular communications infrastructure after the aircraft has landed, wherein the cellular communications infrastructure is accessed automatically upon landing of the aircraft; [and]

receiving said transmitted flight data; and

wherein said flight data is gathered in-flight by at least one sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

19. (amended): A computer-implemented method of transmitting aircraft flight data from an aircraft, comprising:

receiving flight data from a digital flight data acquisition unit, wherein said flight data is gathered in-flight by at least one sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft;

processing said flight data to prepare said data for transmission; and

transmitting said processed data via a cellular infrastructure after the aircraft has landed, wherein the cellular infrastructure is accessed automatically upon landing of the aircraft.

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33. (amended): A computer readable medium having stored thereon instructions which when executed by a processor, cause the processor to perform the steps of:

receiving flight data from a digital flight data acquisition unit in an aircraft, wherein said flight data is gathered in-flight by at least one sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft;  
processing said flight data to prepare said data for transmission; and  
transmitting said processed data via a cellular infrastructure when said aircraft has landed, wherein the cellular infrastructure is accessed automatically upon landing of the aircraft.

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REMARKS

The '990 patent includes claims 1-33. In the Office Action, claims 5, 8-14 and 25-32 are confirmed. Claims 1-4, 6, 7, 15-24 and 33 are rejected. Specifically, claims 1, 4, 6, 7, 15-20 and 33 are rejected under 35 U.S.C. section 102(b) as being anticipated by U.S. Patent No. 5,351,194 to Ross et al. (Ross). Claims 1-4, 6, 7, 15-24 and 33 are rejected under 35 U.S.C. section 102(e) as being anticipated by U.S. Patent No. 6,047,165 to Wright, et al. (Wright). Claims 2, 3, 21 and 22 are rejected under 35 U.S.C. section 103(a) as being unpatentable over Ross in further view of U.S. Patent No. 5,943,399 to Bannister, et al. (Bannister). Claims 23 and 24 are rejected under 35 U.S.C. section 103(a) as being unpatentable over Ross in further view of U.S. Patent No. 5,463,656 to Polivka, et al. (Polivka). The Patent Owner traverses all of the claim rejections.

Statement under 37 CFR 1.560(b)

The Patent Owner and the undersigned would like to thank the Examiner for the courtesies extended during the interview of July 6, 2005 (the interview). Pursuant to 37 CFR 1.560(b), the Patent Owner provides below, "a complete written statement of the reasons presented at the interview as warranting favorable action." See 37 CFR 1.560(b).

(1) The Patent Owner argued that claims 1, 15, 18, 19 and 33 are patentable over Ross because Ross fails to teach communicating "flight data . . . wherein the communication is initiated automatically upon landing the aircraft." To the contrary, Ross only teaches sending a flight plan cancellation upon the landing of an aircraft, not "flight data" as recited in claims 1, 15, 18, 19 and 33.

(2) The Patent Owner also argued that Ross does not teach "a data storage medium having stored thereon flight data" as recited in claims 1 and 15. In fact, Ross does not teach any kind of storage of "flight data."

(3) The Patent Owner also argued that claims 1, 15, 18, 19 and 33, as amended, are patentable over Wright because Wright fails to teach any "cellular infrastructure." Instead, Wright teaches transmitting data in unlicensed frequency bands to a series of "airport-resident GDL wireless router segments 201" located at various locations in an airport. The Patent Owner also noted that, in addition, Wright teaches away from transmitting in licensed frequencies, such

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as those used by cellular infrastructures. *See* Wright at col. 14, ll. 32-40.

Claim Amendments

The Patent Owner has amended the claims as follows:

(1) Independent claim 1 has been amended to recite that the, "flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft," and is "gathered in-flight by at least one sensor on the aircraft." Claims 15, 18, 19 and 33 have been similarly amended.

(2) Independent claim 1 has been amended to recite that, "the cellular infrastructure communicates said flight data." Claim 15 has been similarly amended.

(3) Independent claim 1 has been amended to recite that the aircraft includes, "a data storage medium having stored thereon flight data." Claim 15 has been similarly amended.

The Patent Owner submits that support for all of the claim amendments may be found throughout the specification, for example, at col. 3, ll. 7-20.

The Ross Reference

The Ross reference teaches, "an apparatus and method of canceling a flight plan of an aircraft to facilitate release of an IFR [Instrument Flight Rules] airspace to other aircraft and for communicating the location of a downed aircraft during emergencies." *See* Ross at Abstract. In the disclosure of Ross, a controller 10 includes three switches, as illustrated in Figure 1 below:

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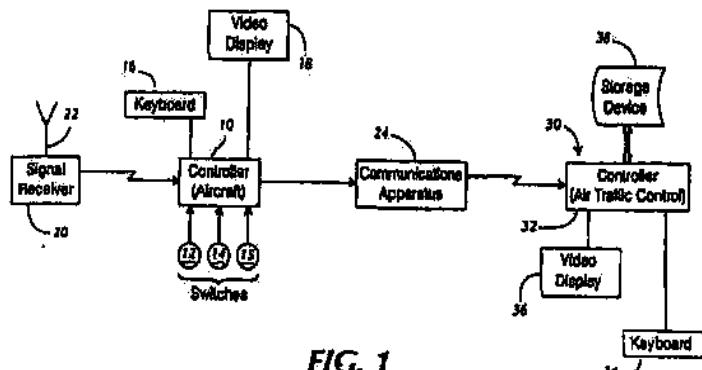


FIG. 1

A switch 14 may be activated manually by the pilot, or automatically when the aircraft lands. *See Ross at col. 4, ll. 25-30.* When switch 14 is activated, the controller 10 communicates with a flight control center 30 to cancel an IFR flight plan for the aircraft, allowing airspace assigned to the aircraft to be released. *See Ross at col. 5, ll. 48-66.* The Patent Owner notes that canceling an IFR flight plan typically involves nothing more than making a brief voice telephone call to the air traffic controller, not any sizable transmission of data.

An additional switch 15 of Ross's controller 10 may be activated in flight by the pilot of the aircraft in the event of an emergency. When switch 15 is activated, the controller 10 communicates in flight the altitude, airspeed and direction of the aircraft to the flight control center 30. *See Ross at col. 6, ll. 13-22.* Another switch 12 of the controller 10 may be activated by a high-impact force, such as a crash. When switch 12 is activated, the controller may transmit the aircraft's current location to the flight control center 30.

#### The Wright Reference

The Wright reference teaches, "a flight information communication system [with] a plurality of RF direct sequence spread spectrum ground data links that link respective aircraft-resident subsystems, in each of which a copy of its flight performance data is stored, with airport-located subsystems." *See Wright at Abstract.*

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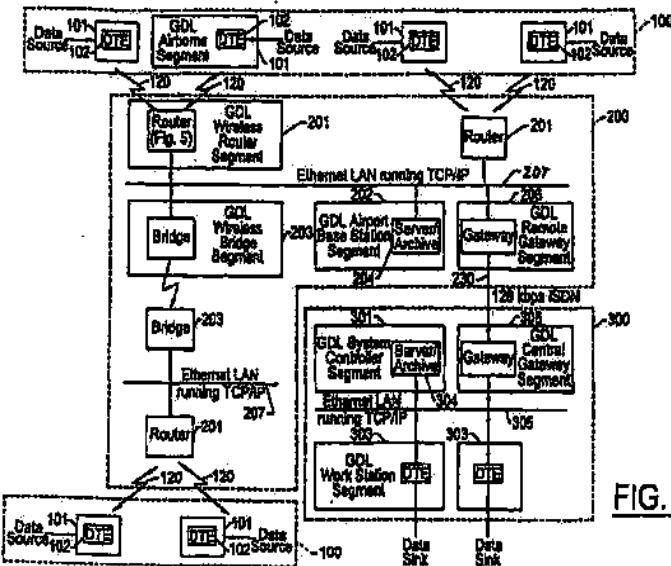


FIG. 1.

As shown in Figure 1 above, Wright's "airport-located subsystem" or "airport-resident ground system 200" includes a complex infrastructure that has a plurality of "airport-resident GDL wireless router segments 201." See Wright at col. 7, ll. 24-27. The "airport-resident ground system 200" is in communication with an "aircraft-installed ground data link (GDL) subsystem 100" through the "wireless router segments 201" over a series of "communication links 120." Wright teaches that "communication links 120" are, "spread spectrum radio frequency (RF) links having a carrier frequency lying in an unlicensed portion of the electromagnetic spectrum." See Wright at col. 14, ll. 32-40. Interference between the "communication links 120" may be minimized by employing "different transmit frequencies and a different channel spacing" in a way that is "akin to that employed in cellular telephone networks." See Wright at col. 15, ll. 1-16.

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Section 102(b) Rejections Over Ross

The Patent Owner submits that the rejections over Ross should be withdrawn because Ross fails to disclose each and every element recited in claims 1, 15, 18, 19 and 33. See MPEP § 2131 (stating that a claim is anticipated only if each and every element as set forth in the claim is disclosed in a single prior art reference).

For example, the Patent Owner submits that Ross fails to teach, among other things, communicating, "flight data . . . wherein the communication is initiated automatically upon landing of the aircraft," as recited in claim 1. Ross teaches canceling a flight plan on landing. See Ross at col. 5, ll. 48-66. Canceling a flight plan does not, however, involve communicating, "flight data includ[ing] time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft," as recited in claim 1. Further, canceling a flight plan does not involve communicating "flight data gathered in-flight by at least one sensor on the aircraft," as recited in claim 1. Instead, canceling a flight data plan involves placing a brief telephone call and does not involve the transmission of flight data which, in various embodiments, includes the transmission of a large amount of data.

Ross does teach communicating, "altitude, air speed, and direction of the aircraft" from the aircraft to the flight control center 30 of Ross. See Ross at col. 6, ll. 13-22. This communication, however, takes place when the pilot manually activates switch 15 of Ross in flight, not, "automatically upon landing of the aircraft," as recited in claim 1.

Accordingly, the Patent Owner submits that claim 1, as well as claims 2-7 which depend directly or indirectly from claim 1, are patentable over Ross. Independent claims 15, 18, 19 and 33 have been amended to contain limitations similar to those limitations of claim 1 discussed above, and therefore claims 15, 18, 19 and 33, as well as claims 16-17 and 20-24 which depend directly or indirectly from claims 15 and 19, respectively, are patentable over Ross.

In addition to the distinctions over Ross discussed above, the Patent Owner submits that claims 1 and 15 include at least one other element that Ross fails to teach. For example, claims 1 and 15 recite, "the aircraft including a data storage medium having stored thereon flight data." Ross is silent as to storing any "flight data" on the aircraft. Accordingly, claims 1 and 15, as well as claims 2-7 and 16-17, which depend directly or indirectly from claims 1-15 are patentable over

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Ross for this additional reason as well as those discussed above with respect to claims 1, 15, 18, 19, and 33.

Section 102(e) Rejections over Wright

The Patent Owner submits that the rejections over Wright should be withdrawn because Wright fails to disclose each and every element recited in claim 1. *See MPEP § 2131*. For example, the Patent Owner submits that Wright fails to teach, among other things, "a cellular infrastructure" that "communicates said flight data," as recited in claim 1.

Wright teaches an "airport-resident ground system 200" having a plurality of "wireless router segments 201." *See Wright at col. 7, ll. 24-38*. The "wireless router segments 201" are in communication with aircraft-based systems over "wireless communication links 120." *See Wright at col. 6, ll. 55-62*. The "airport-resident ground system 200" of Wright is clearly not a "cellular infrastructure" as recited in claim 1. For example, Wright teaches that its "wireless communication links 120" utilize unlicensed carrier frequencies. *See, e.g., Wright at col. 14, ll. 32-40*. It is well known in the art of cellular communication that a cellular infrastructure, such as a mobile telephone voice/data network, uses carrier frequencies in the licensed frequency range. Accordingly, the "airport-resident ground system 200" of Wright cannot be a "cellular infrastructure" as recited in claim 1.

Not only does Wright fail to teach the use of a cellular infrastructure, but it, in fact, teaches away from it. For example, Wright cites its use of unlicensed (and therefore non-cellular) carrier frequencies as a "particularly useful characteristic" while noting that other options, including those operating in the licensed frequency spectrum (such as, for example, the licensed frequency bands used by a cellular infrastructure), "restrict usage geographically or require the user to obtain a license in order to operate the system." *See Wright at col. 14, ll. 32-40*. This demonstrates that claim 1 is not only novel over Wright, but is also non-obvious. *See MPEP § 2144.05* (*A prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention).

The Patent Owner notes that the "airport-resident ground system 200" of Wright does have "overlapping [unlicensed band] ground link communication coverage, as indicated by

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overlapping circles 214 and 215," and a co-channel interference minimization scheme described as, "akin [i.e., similar] to that employed in cellular telephone networks." *See* Wright at col. 9, ln. 58 – col. 10, ln. 3, col. 15, ll. 1-16. However, these characteristics merely show that the "airport-resident ground system 200" of Wright uses some techniques similar to those used in cellular, or mobile, communication. The "airport-resident ground system 200," though, is clearly not a "cellular infrastructure," especially in light of the differences and teaching away as discussed above.

Accordingly, the Patent Owner submits that claim 1, as well as claims 2-7 which depend directly or indirectly from claim 1, are patentable over Wright. Independent claims 15, 18, 19 and 33 include limitations similar to those of claim 1 discussed above, and therefore claims 15, 18, 19 and 33, as well as claims 16-17 and 20-24 which depend directly or indirectly from claims 15 and 19, respectively, are patentable over Wright.

The Patent Owner is not conceding the correctness of the Office's rejections with respect to any of the dependent claims discussed above and hereby reserves the right to make additional arguments as may be necessary because the dependent claims include additional features that further distinguish the claims from the cited references, taken alone or in combination. A detailed discussion of these differences is believed to be unnecessary at this time in view of the basic differences in the independent claims pointed out above.

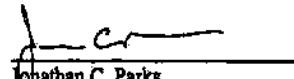
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CONCLUSION

Patent Owner respectfully asserts that claims 1-4, 6, 7, 15-24 and 33 as amended herein have been shown to be patentable over the references cited in the June 3, 2005 Office Action in the present reexamination proceeding. Accordingly, the Patent Owner respectfully requests issuance of a reexamination certificate directed to claims 1-4, 6, 7, 15-24 and 33 as herein amended as well as to previously confirmed claims 5, 8-14 and 25-32.

As required under 37 C.F.R. § 1.550(f), a copy of this response has been provided to the reexamination requester in the manner set forth in 37 C.F.R. § 1.248.

Respectfully submitted,

  
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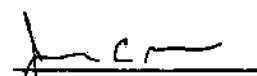


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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing  
AMENDMENT AND RESPONSE TO OFFICE ACTION IN REEXAMINATION was served  
by First Class Mail, postage prepaid, upon:

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EXHIBIT 3  
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